# MongoDB -Aggregation Exercises

Import the zips.json file into your MongoDB. Database name is "population" and collection name is "zipcodes".

mongoimport --db population --collection zipcodes --file zips.json

# Atlanta Population

1. use db.zipcodes.find() to filter results to only the results where city is ATLANTA and state is GA.

**db.zipcodes.find({city:"ATLANTA"}, {state:"GA"}).pretty()**

1. use db.zipcodes.aggregate with $match to do the same as above.

**db.zipcodes.aggregate({$match:{$and: [{city:"ATLANTA"},{state:"GA"}]}})**

1. use $group to count the number of zip codes in Atlanta.

**db.zipcodes.aggregate([{$group:{\_id: "ATLANTA"}},{$count:"zipsCount"}])**

1. use $group to find the total population in Atlanta.

**db.zipcodes.aggregate([{ $match: {city: "ATLANTA"}}, {$group: {\_id:"$city", total:{$sum:"$pop"}}}])**

# Populations By State

1. use aggregate to calculate the total population for each state

**db.zipcodes.aggregate([{$group: {\_id:"$state", total:{$sum:"$pop"}}}])**

1. sort the results by population, highest first

**db.zipcodes.aggregate([{$group: {\_id:"$state", total:{$sum:"$pop"}}},{$sort:{total: -1}}])**

1. limit the results to just the first 3 results. What are the top 3 states in population?

**db.zipcodes.aggregate([{$group: {\_id:"$state", total:{$sum:"$pop"}}},{$sort:{total: -1}},{$limit:3}])**

# Populations by City

1. use aggregate to calculate the total population for each city (you have to use city/state combination). You can use a combination for the \_id of the $group: { city: '$city', state: '$state' }

**db.zipcodes.aggregate([{$group: {\_id: {state:"$state",city:"$city"}, total:{$sum:"$pop"}}}])**

1. sort the results by population, highest first

**db.zipcodes.aggregate([{$group: {\_id: {state:"$state",city:"$city"}, total:{$sum:"$pop"}}},{$sort:{total: -1}}])**

1. limit the results to just the first 3 results. What are the top 3 cities in population?

**db.zipcodes.aggregate([{$group: {\_id: {state:"$state",city:"$city"}, total:{$sum:"$pop"}}},{$sort:{total: -1}},{$limit:3}])**

1. What are the top 3 cities in population in Texas?

**db.zipcodes.aggregate([{ $match: {state: "TX"}}, {$group: {\_id:"$city", total:{$sum:"$pop"}}},{$sort:{total:-1}},{$limit:3}])**

# Bonus

1. Write a query to get the average city population for each state.

**db.zipcodes.aggregate([{$group: {\_id:"$state",avgpop:{$avg:"$pop"}}}])**

1. What are the top 3 states in terms of average city population?

**db.zipcodes.aggregate([{$group: {\_id:"$state",avgpop:{$avg:"$pop"}}},{$sort:{avgpop:-1}},{$limit:3}])**